

**PLUMAS NATIONAL FOREST
FEATHER RIVER RANGER DISTRICT**

GIBSONVILLE HEALTHY FOREST RESTORATION PROJECT

BOTANY

**BIOLOGICAL ASSESSMENT and BIOLOGICAL EVALUATION
for
Threatened, Endangered, and Sensitive Vascular Plants, Bryophytes, Lichens, and Fungi**

**BOTANY REPORT
for
Watch List (Special Interest) Plant Species and other Botanical Resources**

**NOXIOUS WEED RISK ASSESSMENT
and
MANAGEMENT STRATEGY**

BOTANY PROTECTION PLAN

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TABLE OF CONTENTS

Introduction	3
Purpose.....	3
Project name and type	3
Geographical extent of area analyzed and timeframe for analysis.....	4
Description of project	4
Biological Assessment.....	8
USFWS Listed Threatened, Endangered, or Proposed species.....	8
Determination	9
Biological Evaluation	9
Current management direction.....	9
Sensitive plant species	10
Field reconnaissance	13
Existing environment.....	13
Effects of the proposed project	13
Environmental consequences.....	14
Determination	16
Botany Report.....	16
Purpose.....	16
Current management direction.....	16
Field reconnaissance	17
Watch List (Special Interest) plant species	17
Effects of the proposed project	18
Revegetation of disturbed areas with native species.....	19
Noxious Weed Risk Assessment	20
Introduction.....	20
Management Direction.....	20
Risk Assessment	21
Botany Protection Plan	27
References	30
Appendix A – Noxious weed and invasive plant mitigation measures	32

INTRODUCTION

PURPOSE

Biological Assessment and Biological Evaluation. Forest Service Manual 2672.42 specifies that a biological assessment and a biological evaluation (BA/BE) be prepared to determine if a project may effect any U.S. Fish and Wildlife Service (USFWS) Threatened, Endangered, or Proposed species (the Biological Assessment) or Forest Service Sensitive species (the Biological Evaluation). The purpose of the Biological Assessment (BA) and Biological Evaluation (BE) portions of this document is to describe the effects of the proposed project on all Threatened, Endangered, Proposed, and Sensitive (TEPS) plant species of record for the project area. The objectives of the BA/BE are:

1. To ensure that Forest Service actions do not contribute to loss of viability of any native or desired non-native plant.
2. To ensure that Forest Service actions do not hasten the federal listing of any species.
3. To provide a process and standard through which TEPS species receive full consideration throughout the planning process, reducing negative impacts to species and enhancing opportunities for mitigation.

Botany Report. The purpose of the Botany Report is to document our consideration of PNF Watch List plant species (formerly called Special Interest plant species) that may be impacted by project activities. This report also recommends protection measures where necessary to prevent Watch List species from being eliminated from Plumas National Forest lands and/or elevated to the Sensitive species list. A note about revegetation of disturbed areas with native species is included at the end of this section.

Noxious Weed Risk Assessment. A Noxious Weed Risk Assessment is prepared to evaluate the risk of noxious weed introduction and spread as a result of project activities. The risk assessment focuses on California Department of Food and Agriculture (CDFA) listed noxious weeds (also called Non-native Invasive Plant species – NNIP). The evaluation is a nine-step process to assess factors not dependent on the proposed action 1) Inventory, 2) Known noxious weeds and control measures, 3) Current habitat vulnerability, 4) Non-project dependent vectors, factors that would result from the proposed action, 5) Habitat alteration expected as a result of project, 6) Increased vectors as a result of project implementation and recommended design criteria and standard operating procedures, 7) Noxious weed control and prevention measures, 8) Anticipated weed response to proposed action, and 9) Costs.

PROJECT NAME AND TYPE

NAME: Gibsonville Healthy Forest Restoration Project

TYPE: Healthy Forest Restoration Act (HFRA)

Project Location

The project area encompasses 1,200 acres located approximately 6-8 miles northeast of La Porte, California, in and around the historic townsite of Gibsonville. County Road 511 (Quincy-La Porte Road) traverses the project area. Most of the project area is within Sierra County; only the northwestern-most 46 acres are in Plumas County. The legal description of the project area is portions of: T22N, R9E, sections 25, 35, and 36; and T22N, R10E, sections 17, 19, 20, 29, and 30. The elevation ranges from 5,050 ft. at the southwest corner of the project area along Wallace Creek to 6,450 feet along the northern edge of the project area along Gibsonville Ridge.

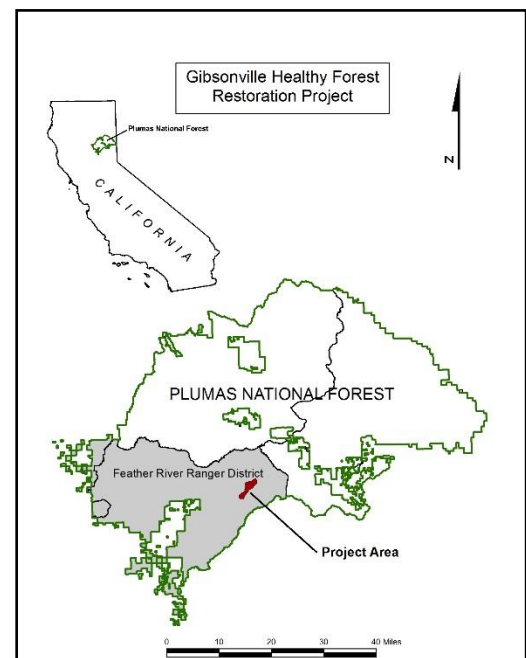


Figure 1. Gibsonville Healthy Forest Restoration Project vicinity map.

Project Summary

The purpose of the Gibsonville Healthy Forest Restoration Project is to reduce the risk of wildfire and to protect, restore, and enhance forest ecosystem components (i.e., streams, meadows, aspen areas) in the vicinity of Gibsonville, California. A combination of hazard tree removal, forest health, and fuels reduction treatments are proposed on 1,200 acres of Forest Service system lands.

GEOGRAPHICAL EXTENT OF AREA ANALYZED AND TIMEFRAME FOR ANALYSIS

The geographic area of analysis for rare plants, non-native invasive plants (NNIP – also called noxious weeds), and other botanical resources is restricted to the project area of the Gibsonville Healthy Forest Restoration Project (Figure 2). This analysis area was selected because it bounds the spatial extent of project related activities and potential direct, indirect, and resulting cumulative effects to the species analyzed below. In addition, major transportation routes between the separate parts of the project area were analyzed for noxious weeds. The distribution of each rare plant species extends beyond the project area and the distribution of each species is different. Most extend beyond the boundaries of the Feather River Ranger District and some extend beyond the Plumas National Forest.

The time frame for vegetation cumulative effects is approximately 20 to 25 years. The western slope of the Sierra Nevada in the Plumas National Forest has a high rate of vegetation establishment and growth due to high annual precipitation and highly productive forest soils. Within this time frame, vegetation generally has sufficient opportunity to increase canopy closure, basal area, and tree density to a point where subsequent thinning would be needed again to maintain stand vigor, health, and growth. This time frame is also expected to encompass the time period for fuels reduction effectiveness (approximately 10 to 20 years).

DESCRIPTION OF PROJECT

Purpose and Need

The Healthy Forests Restoration Act (HFRA) of 2003 authorizes the Forest Service to implement hazardous fuel reduction projects to reduce wildfire risk to at-risk public lands; to enhance efforts to protect watersheds and address threats to forest health, including catastrophic wildfire, across the landscape; and to protect, restore, and enhance forest ecosystem components, to promote the recovery of threatened and endangered species, improve biological diversity, and enhance productivity and carbon sequestration.

The purpose of the project is to retain and restore the ecological resilience of NFS lands, while providing for a broad range of services to humans and other organisms. Ecological resiliency refers to all stages of forest development. Not only the ecosystem's ability to absorb small drivers and stressors (disturbances like wildfire, insects and diseases) and prevent them from amplifying into larger ones, but also its capacity to recover afterwards.

Specific purposes of the project are to:

- Remove hazard trees along roadways and from within the Gibsonville townsite to make these areas safer and increase roadside viewing distances for motorists, local residents, recreationists and other forest users;
- Thin vegetation to increase visibility and protect the Gibsonville townsite;
- Thin vegetation to release aspen from conifer suppression;
- Thin vegetation to restore meadow potential zones;
- Reduce ground, ladder and crown fuels by thinning trees and brush, thereby decreasing the likelihood of a severe wildfire spreading to private lands and structures or into California spotted owl and/or goshawk habitat; and
- Utilize removed material – timber and smaller trees – to create an economic benefit locally and generate partial funding for the required noncommercial thinning and burning fuel treatments.

Proposed Restoration Treatments

Table 1 summarizes the principal restoration activities proposed for the Gibsonville Healthy Forest Restoration Project. See also the map of the project area in Figure 2.

Table 1. Gibsonville Healthy Forest Restoration Project: Summary of proposed forest health and restoration treatments, and comparison of treatment acres by alternative.

Proposed Treatments	Alternative B (Acres)	Alternative C (Acres)	Difference (Acres)
Aspen Release and Biomass	23	23	
Hand cut pile burn and Underburn	345	435	+91
Masticate and Underburn	18	18	
Masticate and Underburn and Biomass	26	26	
Masticate or Hand cut pile burn or Underburn	137	137	
Meadow Restoration and Biomass	9	9	
No Treatment	146	171	+25
Riparian Restoration	16	16	
Roadside Hazard and Hand cut pile burn	54	54	
Roadside Hazard and Hand cut pile burn and Biomass	61	61	
Underburn	7	7	
Variable density thin to an average of 40% canopy cover and Underburn and Biomass	359	243	-116
Grand Total	1,200	1,200	0

Description of Alternatives

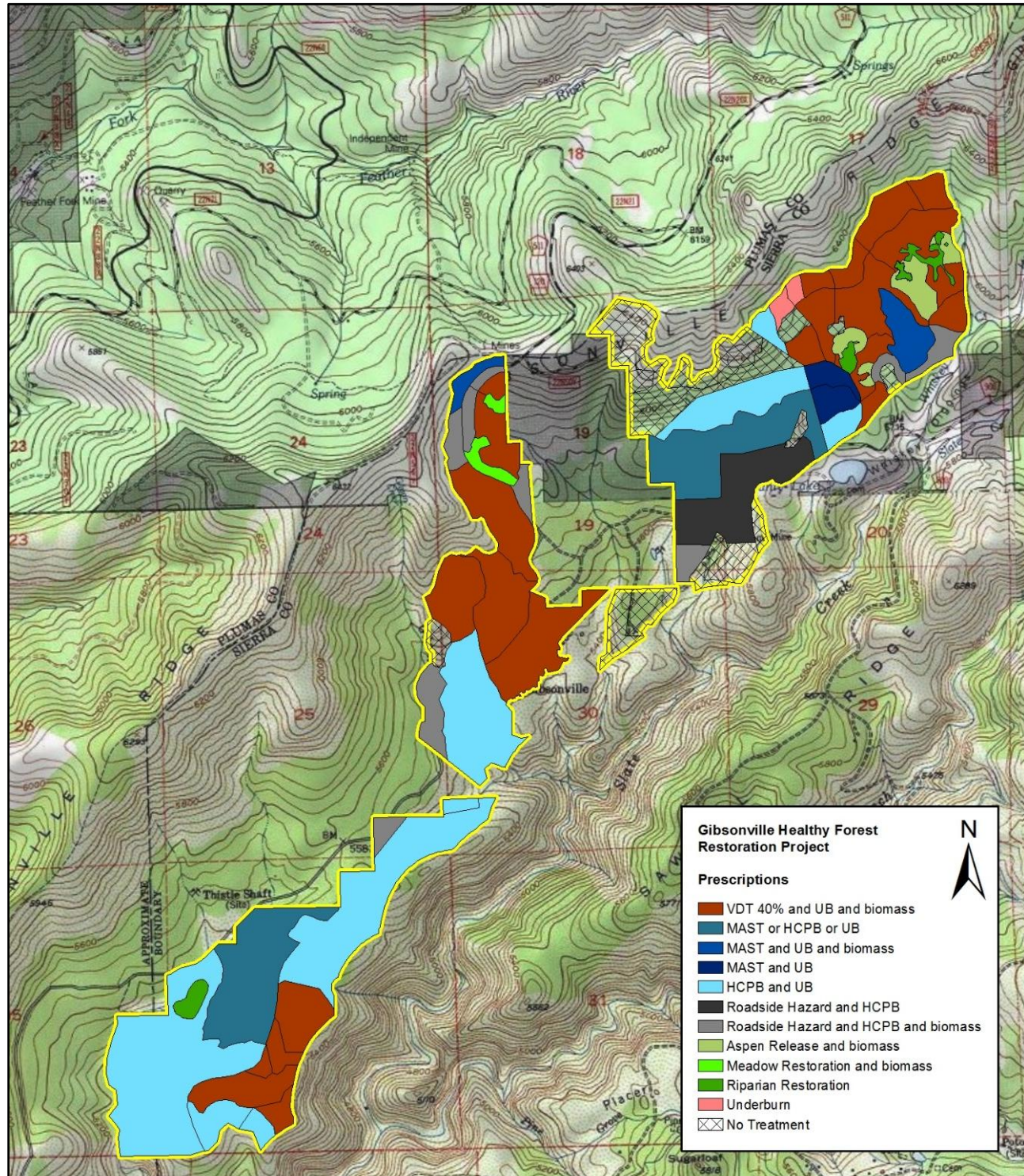
The following are brief descriptions of the alternatives analyzed for this proposal.

- **Alternative A** - While this alternative takes no action at this time, on-going activities such as routine road maintenance, fire suppression, and recreation may still occur in this area. This alternative serves as a baseline against which to compare the action alternative. Under Alternative A, no fuels treatments, forest health or restoration treatments would be implemented to accomplish the purpose and need. The intent and the desired condition set forth in the 1988 Plumas National Forest Land and Resource Management Plan (PNF LRMP) (USDA Forest Service 1988), as amended by the Sierra Nevada Forest Plan Amendment (SNFPA) FSEIS and ROD (USDA Forest Service 2004a, USDA Forest Service 2004b), would not be achieved. While no costs would be incurred with the “no action” alternative, no hazard tree removal, fuels reduction, or economic benefit would be extended to the rural communities as a result of this project.
- **Alternative B** - This alternative seeks to 1) protect, enhance and restore riparian, meadows, aspen areas and spotted owl and goshawk protected activity centers and territories; 2) remove hazard trees and reduce fuel ladders along roads, thereby increasing firefighter and transportation safety; 3) enhance forest health, increase tree vigor, reduce tree mortality and susceptibility to insect, disease and drought by reducing tree densities; 4) and provide some economic benefit utilizing sawlogs and biomass.

Proposed treatments would include a combination of variable density thinning, thinning from below, biomass removal, mastication, hand thinning, and prescribed fire. Alternative B is designed to the fullest extent possible to incorporate the General Technical Report GTR-220 (North et al. 2009) and GTR-237 (North et al. 2012) and fulfills land management direction and the standards and guidelines for the 2004 SNFPA ROD land allocations (USDA Forest Service 2004b).

- **Alternative C** - This alternative was developed to analyze an alternative consistent with the *Draft Interim Recommendations for the Management of California Spotted Owl Habitat on National Forest System Lands* 29 May 2015. Alternative C would have the same goals and objectives as listed in Alternative B above, but to a lesser extent.

Figure 2. Gibsonville Healthy Forest Restoration Project planning units and prescriptions (project area outline in yellow). Sierra (mostly) and Plumas counties, T22N R9E and T22N R20E. Scale approx. 1 3/4" = 1 mile.



Proposed treatments would be similar to Alternative B and would include a combination of variable density thinning, thinning from below, biomass removal, mastication, hand thinning, and prescribed fire. However, there would be less acres of variable density thinning, and more acres of hand cutting and piling and no treatment areas. Alternative C is designed to the fullest extent possible incorporating the General Technical

Report GTR-220 (North et al. 2009) and GTR-237 (North et al. 2012) and fulfills land management direction and the standards and guidelines for the 2004 SNFPA ROD land allocations (USDA Forest Service 2004b).

Description of Treatments

The Forest Service would use specific treatment methods to achieve the desired results for the project. The following list briefly describes the treatment methods proposed:

- **Hazard Tree Removal:** Removal of trees deemed hazardous or dangerous based on Forest Services hand-book standards for identifying such trees. This is generally done within two tree heights, or approximately 200 feet, from roads or structures.
- **Mechanical Thinning (timber removal):** Removal of saw-timber sized trees (10 - 29.9 inches diameter breast height (DBH)) to thin the stand and remove ladder and canopy fuels. The goal is to increase ground-to-crown height, increase spacing between trees, and increase the spacing between tree crowns. Approximately 40 percent canopy cover would be retained on average over all treatment units, with a 30% canopy cover target near roads transitioning to 50% canopy approximately 200 feet from roads. The purpose of the 30% canopy cover standard near roads is to create safer conditions for firefighters to establish a fireline there. A fire will generally “lay down” to a ground fire when the flames cannot move from treetop to treetop.

Removal of conifers less than 30 inches DBH by individual tree selection using variable density thinning (VDT) in areas beyond the 200-foot road corridor buffer, aspen stands, meadow potential zones, and the Gibsonville town site resulting in 40 percent average canopy cover. Roadside thinning would be thinning from below to remove small and medium sized trees first and generally retaining the largest healthiest trees. VDT is a compilation of various thinning treatment elements: a) structural thinning and b) radial release of fire-resilient legacy trees.

Removal of conifers by individual tree selection within aspen stands including sawlogs 10 inches in diameter at breast height (DBH) and greater, as well as biomass conifers 3 inches to 9.9 inches DBH. Select ponderosa and Jeffrey pine trees greater than 30 inches DBH will be retained for wildlife purposes, structure, and species diversity as well as retention of exceptionally large conifers for aesthetic value. Species such as lodgepole pine and white fir will not be retained because of their vigor in encroaching meadows as well as the prolific seeding that is common for white fir.

The priority for thinning would be the removal of the smaller, suppressed, and intermediate-crown class trees (10-16 inches DBH), and removal of some co-dominant and dominant trees with crowns underneath and adjacent to healthy large trees. The preferred species for residual trees in this are shade-intolerant species where they exist. In order of preference, the shade-intolerant species are ponderosa pine, Jeffrey pine, black oak, sugar pine, Douglas-fir, incense-cedar, and true fir.

Mechanical thinning generally utilizes wheeled or tracked processing machines that cut, buck and limb trees onsite. Often, a separate machine carries or drags the logs to the landing area where they are stacked and stored for transport to a mill.

- **Biomass Removal:** Removal of surface and ladder fuels (trees 3.0 - 9.9 inches) following the guidelines stated above for mechanical thinning. Many ladder fuels fall into this size range. Biomass removal allows the option for these trees to be sold for small log uses rather than cut, piled and burned on site.
- **Mastication:** Removal of woody shrubs and trees using mechanical ground-based equipment to grind harvest residue or thin small trees. Shrubs and trees less than 10 inches DBH would be masticated, unless the trees are needed for the desired spacing. Most masticated trees would be less than 6 inches DBH.
- **Hand cut and pile (hand pile):** Removal of shrubs and trees up to 10 inches DBH by manually cutting using chainsaws. These ground and ladder fuels are removed from beneath overstory trees, and/or aggregations of small-diameter conifers or plantation trees. The spacing of residual conifers and black oaks would be generally 18-24 feet to allow retention of the healthiest, largest, and tallest conifers and black oaks and to avoid creating openings where future regrowth would be likely.
- **Under burning and pile burning:** The cut trees, shrubs, and existing slash would be manually piled and burned. Under burning is prescribed ground fire designed to reduce fuels on the ground.
- **Sporax Treatment:** To prevent the spread of *Heterobasidion (occidentale or irregulare)* root disease, the use of sodium tetraboratedecahydrate (a fungicide treatment) is proposed for use in areas with evidence of root

rot. As a simple rule, *Heterobasidion irregulare* can kill ponderosa pine, Jeffrey pine, sugar pine, Coulter pine, incense-cedar, western juniper, and pinyon pine, while *H. occidentale* can kill true firs, hemlock, Douglas-fir, and giant sequoia. Sporax treatments would be applied to stumps of trees 14 inches in diameter and greater where they are within 200 feet of striking roads and other main travel routes. All stumps would be treated the same day or within 24 hours of cutting to maximize incorporation of the product into the stump while the stump is still moist. Sporax is typically applied at a rate of one pound per 50 square feet of stump surface. The application of Sporax will not be allowed within any riparian conservation areas (RCA) or streamside management zones (SMZs). See the Gibsonville HFR Silviculture report for details about the number of acres that would be treated with sporax, the evaluation of human and ecological risk, and the herbicide/pesticide safety spill plan.

Project Design and Mitigation Measures specific to Rare Plants and Non-native Invasive Plants

Sensitive and Watch List Plant Species Protection.

- All known locations of Forest Service Sensitive Plant Species and PNF Watch List Species will be protected from ground-disturbing activities through the establishment of botanical Controlled Areas (see the Botany Protection Plan on page 27 for details).
- Heavy equipment will not enter these Controlled Areas and burn piles will not be placed in them.
- Where mastication and other thinning activities can be implemented without the wheels or tracks of mechanized equipment entering the Controlled Areas, these activities, such as hand-cutting and lop-and-scatter, and underburning are desirable for improvement and maintenance of the habitat of these Sensitive and Watch List Plant Species.

Non-native Invasive Plants (NNIP)

- All equipment used off-road will be weed-free prior to entering National Forest System (NFS) lands.
- Non-native invasive species (including noxious weeds) identified before or during ground-disturbing activities will be pulled or cut according to species composition and project constraints.

BIOLOGICAL ASSESSMENT

USFWS LISTED THREATENED, ENDANGERED, OR PROPOSED SPECIES

Initial consultation with U.S. Fish and Wildlife Service (USFWS) consists of determining whether any Federally listed Threatened, Endangered, or Proposed species are known from within the counties included in the project area (Sierra and Plumas counties). Therefore, the latest USFWS species list for the Plumas National Forest was accessed from the USFWS website on April 25, 2016 (USFWS 2016). This list fulfills the requirements to provide a current list of Threatened, Endangered, and Proposed plant species pursuant to Section 7(c) of the Endangered Species Act, as amended.

The USFWS list of Threatened, Endangered, or Candidate plant species for Sierra and Plumas counties includes 2 species, none of which is known from the Feather River RD (Table 2) and habitat for them is marginal or not found on the District (see below).

Table 2. USFWS listed plant species reported from within the counties in which the Gibsonville Healthy Forest Restoration Project is planned (Sierra and Plumas counties). None of these species is known from the Feather River RD.

Species	Common Name	Federal Status	Habitat ¹
<i>Orcuttia tenuis</i>	slender Orcutt grass	Threatened	• Vernal pools

<i>Ivesia webberi</i>	Webber ivesia	Threatened	<ul style="list-style-type: none"> • Great Basin scrub (volcanic ash) • Lower montane coniferous forest • Pinyon and juniper woodland
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¹CNPS 2016.<http://www.rareplants.cnps.org>

Orcuttia tenuis is listed as a Threatened species for Sierra and Plumas counties. It is found in vernal pools from 115-5800 ft elevation (CNPS 2016). The nearest known populations are 40 miles to the west in the Sacramento Valley of Butte County near Oroville and 36 miles north in Plumas County near Lake Almanor (CNPS 2016, USFWS 2016). There is no habitat present in the project area and intensive field surveys of the project area did not locate any of this species.

Ivesia webberi is listed as a Threatened species for Sierra and Plumas counties. It is found in sagebrush, juniper woodlands, and associated conifer forests from 3300-6800 ft elevation (CNPS 2016). The nearest known populations are 14 miles north in Plumas County near Quincy, where it is considered to be extirpated, and 36-46 miles east in Plumas and Sierra counties around the east side of Sierra Valley (CNPS 2016, USFWS 2016). There is no habitat present in the project area and intensive field surveys of the project area did not locate any of this species.

There is no suitable habitat for Threatened, Endangered, or Proposed plant species present within or near the project area. Thus, no formal or informal consultation with the USFWS has been conducted and these species will not be discussed in the effects section of this biological assessment/evaluation.

DETERMINATION

It is my determination that the Gibsonville Healthy Forest Restoration Project will not affect any Federally listed plant species or any proposed critical habitat.

BIOLOGICAL EVALUATION

CURRENT MANAGEMENT DIRECTION

Direction relevant to the alternatives as they affect Sensitive plant species includes:

Forest Service Manual and Handbooks (FSM/H 2670).

Forest Service Sensitive species are plant species identified by the Regional Forester for which population viability is a concern. The Forest Service develops and implements management practices to ensure that Sensitive plant and animal species do not become threatened or endangered and to ensure their continued viability on National Forests. It is Forest Service policy to analyze impacts to Sensitive species to ensure management activities do not create a significant trend toward federal listing or loss of viability. This assessment is documented in a Biological Evaluation (BE).

Sierra Nevada Forest Plan Amendment, Plant Surveys (USDA Forest Service 2004b, 2005).

Conduct field surveys for Threatened, Endangered and Sensitive plant species early enough in the project planning process that the project can be designed to conserve or enhance Threatened, Endangered and Sensitive plants and their habitat. Conduct surveys according to procedures outlined in the Forest Service Handbook (FSH 2609.25.1.11). The standards and guidelines provide direction for conducting field surveys, minimizing or eliminating direct and indirect impacts from management activities and adherence to the Regional Native Plant Policy (USDA Forest Service 2004b).

Plumas National Forest Land and Resource Management Plan (USDA Forest Service 1988).

The Forest Plan provides management direction for all Plumas National Forest Sensitive plants; that direction is to “maintain viable populations of Sensitive plant species” (USDA Forest Service 1988, page 4-34). The Forest Plan also provides forest-wide standards and guidelines to:

- protect Sensitive and Watch List (Special Interest) plant species as needed to maintain viability;

- inventory and monitor Sensitive plant populations on an individual project basis; and
- develop species Management Guidelines to identify population goals and compatible management activities/prescriptions that will maintain viability.

Plumas National Forest Interim Management Prescriptions for Threatened, Endangered, Sensitive(TES) and Watch List (Special Interest) Plants (USDA Forest Service 2014).

Management guidelines have been developed for all TES and Watch List (Special Interest) plant species on the Plumas National Forest. This represents Forest Supervisor's direction to "ensure that these prescriptions are being applied appropriately to ensure compliance with our Land & Resource Management Plan." Specific management prescriptions are given in the discussion of the effects of the proposed project on each species in the Environmental Consequences section below.

SENSITIVE PLANT SPECIES

US Forest Service Region 5 Sensitive Plant Species

Table 3 lists all Sensitive plant species known from the Plumas National Forest (USDA Forest Service 2013). No other Sensitive plant species have known occurrences or potential habitat on the Plumas National Forest. Mingan moonwort (*Botrychium minganense*) and Hutchison's lewisia (*Lewisia kelloggii* ssp. *hutchisonii*) are the only Sensitive plant species known from within the project area. Olive phaeocollybia (*Phaeocollybia olivacea*) has no high quality potential habitat present within the project area, as discussed in the following paragraph. **Species which are not known in the project area, or with no habitat in the project area based on the reasons given in Table 3, are not further analyzed in this document.**

Table 3. Sensitive plant, bryophyte, lichen, and fungus species on the Plumas National Forest.

Species name/common name	Known occurrence in project area	Potential habitat present but plant not present	No habitat in project area	Habitat unsuitable based on the following:
<i>Allium jepsonii</i> Jepson's onion			x	No serpentine soil, out of range
<i>Astragalus lemmonii</i> Lemmon's milk-vetch			x	East side Sierra Nevada
<i>Astragalus lentiformis</i> lens-pod milk-vetch			x	East side Sierra Nevada
<i>Astragalus pulsiferae</i> var. <i>coronensis</i> Modoc Plateau milk-vetch			x	East side Sierra Nevada
<i>Astragalus pulsiferae</i> var. <i>pulsiferae</i> Pulsifer's milk-vetch			x	East side Sierra Nevada
<i>Astragalus webberi</i> Webber's milk-vetch			x	East side Sierra Nevada
<i>Balsamorhiza macrolepis</i> big-scale balsamroot			x	Too high in elevation, far south of the range
<i>Boechera constancei</i> Constance's rockcress	*		x	No serpentine soil
<i>Botrychium ascendens</i> upswept moonwort		x		
<i>Botrychium minganense</i> scalloped moonwort		x		
<i>Botrychium lunaria</i> common moonwort		x		
<i>Botrychium minganense</i> Mingan moonwort	x			
<i>Botrychium montanum</i> western goblin		x		

Species name/common name	Known occurrence in project area	Potential habitat present but plant not present	No habitat in project area	Habitat unsuitable based on the following:
<i>Botrychium pinnatum</i> northwestern moonwort		x		
<i>Bruchia bolanderi</i> Bolander's bruchia		x		
<i>Buxbaumia viridis</i> buxbaumia moss		x		
<i>Calycadenia oppositifolia</i> Butte County calycadenia			x	Only known from Butte County, too high in elevation
<i>Clarkia gracilis</i> ssp. <i>albicaulis</i> white-stemmed clarkia			x	Too high in elevation
<i>Clarkia mildrediae</i> ssp. <i>mildrediae</i> Mildred's clarkia			x	Project area farther south and east than the known range, too high in elevation
<i>Clarkia mosquinii</i> Mosquin's clarkia			x	Project area farther east than the known range, too high in elevation
<i>Cypripedium fasciculatum</i> clustered lady's-slipper		x		
<i>Cypripedium montanum</i> mountain lady's-slipper		x		
<i>Dendrocollybia racemosa</i> branched collybia			x	East side Sierra Nevada
<i>Eleocharis torticulmis</i> California twisted spikerush			x	Project area farther south than the known range
<i>Eremogone cliftonii</i> Clifton's eremogone			x	Project area farther south and east than the known range
<i>Eriogonum microthecum</i> var. <i>schoolcraftii</i> Schoolcraft's wild buckwheat			x	East side Sierra Nevada
<i>Eriogonum umbellatum</i> var. <i>ahartii</i> Ahart's buckwheat			x	No serpentine soil, farther east than known range
<i>Fissidens aphelotaxifolius</i> brook pocket moss		x		
<i>Fissidens pauperculus</i> minute pocket moss		x		
<i>Frangula purshiana</i> ssp. <i>ultramafica</i> Caribou coffeeberry			x	No serpentine soil
<i>Fritillaria eastwoodiae</i> Butte County fritillary			x	Too high in elevation, farther southeast than known range
<i>Helodium blandowii</i> Blandow's bog moss			x	East side Sierra Nevada
<i>Ivesia aperta</i> var. <i>aperta</i> Sierra Valley ivesia			x	East side Sierra Nevada
<i>Ivesia sericoleuca</i> Plumas ivesia			x	East side Sierra Nevada
<i>Ivesia webberi</i> Webber's ivesia			x	East side Sierra Nevada
<i>Juncus luciensis</i> Santa Lucia dwarf rush			x	East side Sierra Nevada
<i>Lewisia cantelovii</i> Cantelow's lewisia			x	No inner canyon rock outcrops
<i>Lewisia kelloggii</i> ssp. <i>hutchisonii</i> Hutchison's lewisia	x			

Species name/common name	Known occurrence in project area	Potential habitat present but plant not present	No habitat in project area	Habitat unsuitable based on the following:
<i>Lewisia kelloggii</i> ssp. <i>kelloggii</i> Kellogg's lewisia			x	Farther west than known range
<i>Lomatium roseanum</i> adobe lomatium			x	East side Sierra Nevada
<i>Meesia uliginosa</i> broad-nerved hump moss			x	No fen habitats in project area
<i>Mielichhoferia elongata</i> elongate copper moss		x		
<i>Monardella follettii</i> Follett's monardella			x	No serpentine soil, out of range
<i>Monardella stebbinsii</i> Stebbins' monardella			x	No serpentine soil, out of range
<i>Oreostemma elatum</i> tall alpine-aster			x	Farther south and west than known range
<i>Packera eurycephala</i> var. <i>lewisrosei</i> Lewis Rose's ragwort			x	No serpentine soil, too high in elevation, out of range
<i>Packera (Senecio) layneae</i> Layne's ragwort			x	No serpentine soil, too high in elevation
<i>Peltigera gowardii</i> veined water lichen		x		
<i>Penstemon personatus</i> closed-throated beardtongue			x	Project area farther south than known range
<i>Penstemon sudans</i> Susanville beardtongue			x	East side Sierra Nevada
<i>Phaeocollybia olivacea</i> olive phaeocollybia			x	See paragraph below.
<i>Poa sierrae</i> Sierra blue grass		x		
<i>Pyrrocoma lucida</i> sticky pyrrocoma			x	East side Sierra Nevada
<i>Sedum albomarginatum</i> Feather River stonecrop			x	No serpentine soil, out of range

*An occurrence is present along the edge of the project area. This species is not discussed further, however a Botany Controlled Area is established around this occurrence to prevent inadvertent impacts (see Botany Protection Plan on page 27).

***Phaeocollybia olivacea*.** A potential habitat model was used to help determine project effects to *Phaeocollybia olivacea*, Forest Service Sensitive species of fungus. This model was developed in 2006 by Ron O'Hanlon of Vegetation Management Solutions (Hoover & O'Hanlon 2008) to aid in the identification of potential habitat for selected Sensitive fungi. The model is based on the professional experience of Dr. Dennis E. Desjardin (Professor of Mycology at San Francisco State University), Dr. David Largent (retired Professor of Mycology at Humboldt State University), and other mycologists, and their understanding of fungal biology. The two main variables that were shown to correspond with known population locations are tree canopy cover and tree species, especially with the presence of Douglas-fir and a well-defined hardwood component. The model delineates habitat quality into low, medium, and high quality potential habitat. Only high quality potential habitat is assessed for impacts to this species on the Plumas National Forest.

Surveys were not conducted for *Phaeocollybia olivacea* because this is a fall fruiting species and access to these mountainous areas after rain and snow present safety concerns. Consequently, areas of potential habitat that rank as having a high potential are assumed to be occupied for the purposes of this analysis. Thus, for the purposes of this discussion low and medium quality habitat is not addressed.

There are 0 acres of high quality potential habitat for *Phaeocollybia olivacea* present in the Gibsonville Healthy Forest Restoration Project area. Thus, no further discussion of this species is needed.

FIELD RECONNAISSANCE

All areas of the Gibsonville Healthy Forest Restoration Project were surveyed at least one time between 2004 and 2015 for Threatened, Endangered, Proposed, and Sensitive plant species (TEPS), Watch List (Special Interest) plant species, and invasive plant species (noxious weeds) by Forest Service botanists, with 90% of the area surveyed or re-surveyed in 2012 or 2013. Botanical surveys focused on rare species with potential habitat. However, surveys were floristic in nature and an attempt was made to identify all plants encountered in the field. Many species have specific habitat preferences (such as serpentine outcrops or wetlands), and botanists searched for these habitats as well as their constituent species. Documentation of field surveys is filed in the District botany office and in the GIS files of official record (NRIS).

The project area has been adequately surveyed for Threatened, Endangered, Proposed, and Sensitive plant species (TEPS).

Field surveys identified the presence of two Forest Service Sensitive plant species: *Botrychium minganense* (Mingan moonwort) and *Lewisia kelloggii* ssp. *hutchisonii* (Hutchison's lewisia). These species are discussed in greater detail below.

EXISTING ENVIRONMENT

Forest Service Sensitive plant species located within the project area

There are about 0.36 acres occupied by Forest Service Sensitive plant species (*Botrychium minganense* and *Lewisia kelloggii* ssp. *hutchisonii*) within the project area. Table 4 lists the Sensitive species found within the project area and summarizes the acreage of each species within the project area. More details of potential impacts to each species are provided in the Environmental Consequences section below.

Table 4. Sensitive plant species located within the Gibsonville Healthy Forest Restoration Project area.

Species	Common Name	Global Rank ¹ / CA Rank ² / CRPR ³	Acres in Project Area
<i>Botrychium minganense</i>	Mingan moonwort	G4G5 / S2 / 2B.2	0.01
<i>Lewisia kelloggii</i> ssp. <i>hutchisonii</i>	Hutchison's lewisia	G3G4T3Q / S3 / 3.2	0.36

¹Global Rank: G1- Critically Imperiled; G2- Imperiled, G3- Vulnerable, G4- Apparently secure, G5- Secure; T- Rank applies to a subspecies or variety; Q- There are taxonomic questions associated with this name (CNPS 2016, NatureServe 2016).

²CA Rank = The state rank (S-rank) is assigned much the same way as the global rank, but state ranks refer to the imperilment status only within California's state boundaries (CNPS 2016; NatureServe 2016).

³CRPR = California Rare Plant Rank (CNPS 2016): 1B- Plants Rare, Threatened, or Endangered in California and Elsewhere, 2- Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere, 3- Plants About Which We Need More Information, 4- Plants of Limited Distribution – A Watch List; and Threat Rank: 0.1- Seriously threatened in California, 0.2- Fairly threatened in California, 0.3- Not very threatened in California.

EFFECTS OF THE PROPOSED PROJECT

An effects analysis is a part of the biological assessment and evaluation process, and is required in cases where rare plants have been found within or near proposed project areas or where potential habitat exists. Elements of the effects analysis are presented below.

ENVIRONMENTAL CONSEQUENCES

The following sections provide a discussion of the direct, indirect and cumulative effects of the proposed project on each Sensitive Plant Species. Only Sensitive species known from within the project area, based on field surveys or other analyses, are discussed in detail in this portion of the document.

***Botrychium minganense* (Mingan moonwort)**

Botrychium minganense is a small fern that is often difficult to spot among the other green plants that it grows with. Each plant consists of a short underground stem (rhizome) that puts up one small, delicate, short-lived leaf per year. Often no leaf is produced in a particular year, the plant then relying on its association with mycorrhizal fungi for needed nutrients. Although found in numerous counties in the Sierra Nevada, Cascade, Warner, and eastern Klamath mountains of California, *B. minganense* is not known to be common anywhere. Outside of California it is found throughout the western United States, Alaska, and the northern-most tier of states, as well as throughout the provinces of Canada. There are 10 known occurrences on the Plumas National Forest, 4 of them on the Feather River RD, the other 6 on the Beckwourth RD. Each occurrence often consists of only a few plants, so overall numbers of plants is low.

Botrychium minganense is usually associated with moist habitats, including meadows, seeps, springs, and riparian areas. It is most often found on the lip of creek banks or on the sides of the banks, mostly within coniferous forest habitats. These habitats are not highly unusual, so the specific limiting factors for this plant species' abundance and distribution are not known. All *Botrychium* species have strong mycorrhizal requirements, which may be a limiting factor.

All occurrences have few individuals. Actual trends in these occurrences are hard to determine since the leaves do not appear above ground every year. Soil disturbance can be very detrimental, especially if it is occurring on a regular basis. Soil disturbance includes grazing and trampling by livestock and OHVs, where a little disturbance and compaction is tolerated but heavy disturbance will kill individuals (Laeger 2002). Changes in the hydrologic regime (from erosion, roads, grazing, etc.) may also potentially threaten occurrences. Hot fires have been shown to be detrimental, especially if the soil conditions are very dry during the burn.

PNF management prescription: *Protect all plant occurrences from ground disturbance. Maintain hydrologic conditions in riparian areas where these plants occur. Do not allow machinery or burn piles in occupied habitat. Consider prescribed fire in potential habitat (riparian areas, meadows, and forb dominated small openings in forested stands) or occupied habitat where hydrologic and stand conditions favorable to their growth can be maintained. Avoid ignitions within occurrences and do not construct fire control lines through occurrences. Allow fire to creep/back into occurrences from adjacent terrain if the fuel loading permits. If riparian areas have a significant amount of conifer encroachment and/or excessive fuels leading to a decline in riparian conditions, consider thinning the smallest diameter trees and removing fuel by hand. Develop a monitoring strategy for habitat enhancement activities as needed. Evaluate other activities on a site-by-site basis considering species abundance, population size, and known species ecology.*

Direct and Indirect Effects

One small occurrence of *Botrychium minganense*, comprising less than 0.01 acre, occurs within the Project area (see Table 4). Although this occurrence is within a project treatment unit with a prescription to "Variable density thin to an average of 40% canopy cover and Underburn and Biomass," it is also within a Riparian Conservation Area which will not be treated mechanically. Within such an RCA only hand-thinning and potentially also underburning would occur (USDA Forest Service 2004b; Hydrology Report to this project). To ensure that even this amount of activity does not impact this small occurrence of Mingan moonwort, the occurrence will be included within a botany Controlled Area where mechanical equipment, ground disturbance, and the creation of burn piles is not allowed. Thus the occurrence of *B. minganense* would not be subject to ground-disturbing activities under either of the Action alternatives.

Prescribed underburn may occur through the 0.01 acre of *B. minganense* in the RCA and in the botany Controlled Area established for this species. Underburn would have minimal impact on the habitat of *B. minganense* since these riparian areas generally experience little impact from controlled underburn. A study of prescribed burning in riparian areas in the Sierra Nevada suggests that effects of underburning to riparian conditions are very limited in intensity and duration (Beche et al. 2005). Only a small part of that study area actually burned and the fire usually self-extinguished when it came in contact with moist soil and typical riparian vegetation. Thus, high soil and fuel moisture, and high relative humidity of the riparian zone, reduces fire intensity and retards fire spread. Thus there would be very minimal negative effects, if any, from underburning, to *B. minganense* from implementation of Alternatives B or C.

Cumulative Effects

Positive effects would result from thinning in the habitat of *B. minganense* where forest encroachment into meadows and riparian areas is thus reduced. It is not possible to quantify this effect, but it will likely be small since this habitat is generally too wet for good conifer growth.

In general, this species has likely lost individuals and suitable habitat in the past as a result of management activities that include water diversions, habitat type conversion, and construction of roads and trails.

The effects of present and future projects on this species would likely be minimal or similar to those described in this analysis if existing management guidelines (such as field surveys, protection of known rare species locations, and noxious weed prevention measures) remain in place. Wet meadows, such as those that support *Botrychium minganense*, would continue to be protected within buffer areas in which no treatments except for underburning are allowed (USDA Forest Service 2004b).

Due to the very small amount of *B. minganense* that has the potential to be negatively impacted by Project activities, the cumulative effects for this species are expected to be negligible.

Lewisia kelloggii ssp. *hutchisonii* (Hutchison's lewisia)

This species is endemic to California and is found in Butte, Plumas, Sierra, and Tuolumne counties and possibly also in Alpine, Amador, El Dorado, Humboldt, Madera, Placer, Shasta, and Siskiyou counties (CNPS 2016). The elevation ranges from 2,500 to 7,800 feet. Occurrences on the Plumas NF appear to represent a central core of the species distribution.

This species generally occurs on shallow rocky soils. It is usually found in openings in chaparral and conifer forests where there is little competition from other plants. Plants of *Lewisia kelloggii* ssp. *hutchisonii* are seldom more than 3-4 inches high, considerably shorter than most of the shrubs that usually surround their habitat. The current trend for this species is unknown. Threats include timber harvest activities, especially the placement of landings and temporary roads; off-highway vehicle use, and road construction.

PNF management prescription: Protect all plant occurrences from ground disturbance that result in soil displacement. Evaluate other activities on a site-by-site basis considering species abundance, population size, geographic distribution, and known species ecology.

Direct and Indirect Effects

There are two sites of *Lewisia kelloggii* ssp. *hutchisonii*, totaling 0.36 acres, located within the project area (Table 4). However, these sites are within a "no treatment" unit. Thus there are no potential effects to these plants or their habitat from project activities.

No occurrences of *Lewisia kelloggii* ssp. *hutchisonii* would be subject to ground- or habitat-disturbing activities under any of the Action Alternatives, thus no further discussion of this species is needed.

DETERMINATION

The Effects Determination discussed here is based on professional experience and judgment, existing information, including existing condition of the analysis area, and the potential impacts of the alternatives. An effects determination is also the culmination of potential direct, indirect, and cumulative effects.

X Will not affect: Region 5 Sensitive Plant Species.

Lewisia kelloggii ssp. *hutchisonii*

Reasons:

- No project activities planned for where this species is found.

X Will not affect: Region 5 Sensitive Plant Species.

Botrychium minganense

Reasons:

- *Botrychium minganense* would be protected from all ground-disturbing project activities.

BOTANY REPORT

PURPOSE

The Plumas National Forest maintains a watch list of plant species that are of conservation concern, but have not been designated as Sensitive by the Regional Forester. This Watch List (Special Interest plant list) includes species that are newly described, locally rare, range extensions or disjunct populations, plants of specific public interest, and species with too little information to determine their appropriate status. According to the Regional Forester, Watch List (Special Interest) plant species should be considered during project planning with corresponding documentation maintained in the planning file (USDA Forest Service 2006). These species make an important contribution to forest biodiversity and should be protected under the provisions of the National Forest Management Act (NFMA).

The purpose of the Botany Report is to document our consideration of Watch List (formerly called Special Interest) plant species that may be impacted by project activities. This report also recommends protection measures where necessary to prevent Watch List (Special Interest) species from being elevated to the Sensitive species list. A note about revegetation of disturbed areas with native species is included at the end of this section.

CURRENT MANAGEMENT DIRECTION

Plumas National Forest Land and Resource Management Plan(USDA Forest Service 1988). The Forest Plan provides management direction for all Plumas National Forest Sensitive plants; that direction is to “maintain viable populations of sensitive plant species” (USDA Forest Service 1988, page 4-34). The Forest Plan also provides forest-wide standards and guidelines to:

- protect sensitive and special interest plant species as needed to maintain viability;
- inventory and monitor sensitive plant populations on an individual project basis; and
- develop species Management Guidelines to identify population goals and compatible management activities/prescriptions that will maintain viability.

Watch List (Special Interest) plant species.

Management direction for Watch List (Special Interest) Species is established at the level of the individual Forest (USDA Forest Service 2006). On the Plumas National Forest (USDA Forest Service 2014) Watch List(formerly called Special Interest) plant species are those species that are of a global concern but do not meet the criteria for the regional Forester’s Sensitive species list. General management direction is to survey and recommend conservation measures for these species. Management prescriptions for Watch List (Special Interest) species are usually not as strict as they are for Sensitive species due to the lesser level of rarity represented by these species. However,

er, some species being reviewed for addition to the Regional Forester's Sensitive species list may also be on the Watch List (Special Interest) plant list and usually have more restrictive management requirements.

Plumas NF Interim Management Prescriptions for TES and Watch List (Special Interest) plant species.

Management guidelines have been developed for all TEPS and Watch List (Special Interest) plant species on the Plumas National Forest (USDA Forest Service 2014). This represents the Forest Supervisor's direction to "ensure that these prescriptions are being applied appropriately to ensure compliance with our Land & Resource Management Plan." Specific management prescriptions are given in the discussion of the effects of the proposed project on each species in the Effects section below.

Watch List (Special Interest) plant species should be considered during project planning and documentation retained in the planning file (USDA Forest Service 2006). These species make an important contribution to forest biodiversity and should be maintained under the provisions of the National Forest Management Act. Therefore, they must be addressed throughout the National Environmental Policy Act (NEPA) process. Potential impacts to these species including context, intensity, and duration of likely effects should be analyzed during project planning.

FIELD RECONNAISSANCE

All areas of the Gibsonville Healthy Forest Restoration Project were surveyed at least one time between 2004 and 2015 for Threatened, Endangered, Proposed, and Sensitive plant species (TEPS), Watch List (Special Interest) plant species, and invasive plant species (noxious weeds) by Forest Service botanists, with 90% of the area surveyed or re-surveyed in 2012 or 2013. Botanical surveys focused on rare species with potential habitat. However, surveys were floristic in nature and an attempt was made to identify all plants encountered in the field. Many species have specific habitat preferences (such as serpentine outcrops or wetlands), and botanists searched for these habitats as well as their constituent species. Documentation of field surveys is filed in the District botany office and in the GIS files of official record (NRIS).

WATCH LIST (SPECIAL INTEREST) PLANT SPECIES

Plumas National Forest Watch List (Special Interest) plants located within the project area

There are approximately 0.03 acres occupied by Plumas National Forest Watch List (Special Interest) plant species within the project area. Table 5 lists all Watch List (Special Interest) plant species found within the project area and the amount of this acreage that may be affected by project activities.

Table 5. Plumas National Forest Watch List (Special Interest) plant species located within the project area.

Species	Common Name	Global Rank ¹ / CA Rank ² / CRPR ³	Acres in Project Area
<i>Botrychium simplex</i>	Yosemitemoonwort	G5 / under review / no rank	0.02
<i>Erigeron petrophilus</i> var. <i>sierrensis</i>	northern Sierra daisy	G4T4 / S4 / 4.3	0.01*

¹Global Rank: G1- Critically Imperiled; G2- Imperiled, G3- Vulnerable, G4- Apparently secure, G5- Secure; T- Rank applies to a subspecies or variety, NR- Rank Not Yet Assessed (CNPS 2016, NatureServe 2016).

²CA Rank = The state rank (S-rank) is assigned much the same way as the global rank, but state ranks refer to the imperilment status only within California's state boundaries (CNPS 2015; NatureServe 2016).

³CRPR = California Rare Plant Rank (CNPS 2016): 1B- Plants Rare, Threatened, or Endangered in California and Elsewhere, 2- Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere, 3- Plants About Which We Need More Information, 4- Plants of Limited Distribution – A Watch List; and Threat Rank: 0.1- Seriously threatened in California, 0.2- Fairly threatened in California, 0.3- Not very threatened in California.

*This is part of a single 7 acre occurrence, all but this 0.01 acre being outside of and bordering the project area. Because the portion of the occurrence that is outside of the project area borders it, and because it is coincident with a Forest Service Sensitive species (*Boechea constancei*), this area outside of the project area will be designated a botany Controlled Area with a management requirement of “keep out.”

EFFECTS OF THE PROPOSED PROJECT

***Botrychium simplex*(Yosemite moonwort)**

Botrychium simplex is a small fern that is often difficult to spot among the other green plants that it grows with. Each plant consists of a short underground stem (rhizome) that puts up one small, delicate, short-lived leaf per year. Often no leaf is produced in a particular year, the plant then relying on its association with mycorrhizal fungi for needed nutrients. Although *B. simplex* is not considered rare by the California Native Plant Society or the California Department of Fish and Game (CNPS 2016), the Plumas National Forest manages for the species as a Watch List plant species. With only 12 occurrences known from the Plumas National Forest, 9 on the Feather River RD and 3 on the Mt. Hough RD, the species is uncommon in our area. However, there are numerous reports of the species from throughout the mountains of California, particularly in the southern Sierra Nevada (CCH 2016). In general, each occurrence often consists of only a few plants, so overall numbers in California are low.

Botrychium simplex is usually associated with moist habitats, including meadows, seeps, springs, and riparian areas. It is most often found on the lip of creek banks or on the sides of creek banks, mostly within coniferous forest habitats. These habitats are not highly unusual, so the specific limiting factors for this plant species' abundance and distribution are not known. All *Botrychium* species have strong mycorrhizal requirements, which may be a limiting factor.

All occurrences have few individuals. Actual trends in these occurrences are hard to determine since the leaves do not appear above ground every year. Soil disturbance can be very detrimental, especially if it is occurring on a regular basis. Soil disturbance includes grazing and trampling by livestock and OHVs, where a little disturbance and compaction is tolerated but heavy disturbance will kill individuals (Laeger 2002). Changes in the hydrologic regime (from erosion, roads, grazing, etc.) may also potentially threaten occurrences. Hot fires have been shown to be detrimental, especially if the soil conditions are very dry during the burn.

PNF management prescription: *Protect occurrences from ground disturbance. Establish no-disturbance buffers of a size and shape appropriate to the site (e.g. distance of one site-potential tree, or approximately 100 ft.). Consider specific habitat components that may be altered by the proposed action. Prescribed fire, if appropriate, should be applied around known occurrences in the fall after seed set. Do not put firelines through occurrences.*

Direct and Indirect Effects

One occurrence of *Botrychium simplex*, comprising about 0.01 acres, occurs within the Project area (Table 5). This occurrence is within a project treatment unit planned to receive “Riparian Restoration” treatment. This treatment often consists of hand cut and pile burn the conifers and shrubs that are encroaching into a meadow. The main danger to *B. simplex* from this treatment would be the piling of slash on top of or next to the plants and particularly the burning of that slash. Therefore this occurrence will be protected from such activities by being included within a Botany Controlled Area that would exclude ground disturbing activities such as the use of heavy equipment or the placement of slash piles or the burning of them. Thus, there would be no direct, indirect, or cumulative effects to *B. simplex* from implementation of either of the action Alternatives.

See the Botany Protection Plan (page 27) for details about planned management of the botany Controlled Area established for the protection of *Botrychium simplex*(least moonwort).

***Erigeron petrophilus* var. *sierrensis* (northern Sierra daisy)**

This rank herbaceous perennial species in the sunflower family commonly grows to 1½ ft. tall with numerous gray-green leafy stems. Several ray-less heads of flowers appear at the tops of the stems. *Erigeron petrophilus* var. *sierrensis* grows in the mixed conifer forest of the northern Sierra Nevada from El Dorado County in the south to Butte and Plumas counties in the north. Although not found exclusively on serpentine through its range, on the Plumas NF the species is found almost exclusively on serpentine; it is found on almost every serpentine area on the Plumas NF. There are 61 occurrences known from the Plumas NF, 19 of them on the Feather River RD.

There have been no studies of the habitat requirements or response to disturbance of *Erigeron petrophilus* var. *sierrensis*. However, almost all of the occurrences on the Feather River RD occur in openings in the forest and almost always on serpentine. While it has been occasionally observed to colonize roadsides, this species appears to do best in undisturbed openings where soil conditions, not human activities, prevent forest development. Plants adapted to survive and thrive on soils derived from serpentine are classic examples of species that avoid competition from other plants and avoid excessive shading from shrubs and forest by being able to tolerate soils with a mineral imbalance that most species cannot (Kruckeberg 1984, Alexander et al. 2007, Harrison and Rajakaruna 2011).

There is only one plant of *Erigeron petrophilus* var. *sierrensis* known from within the project area, on a small outcrop of metavolcanic rock in a small opening in the forest. However, not far away there is also a large 7 acre occurrence immediately adjacent to the project area that contains about 500 plants (as reported in 2012). This large site is an almost barren serpentine opening in the forest that also supports the FS Sensitive *Boechera constancei*. In addition, an extension of the occurrence on a serpentine slope on the south side of Slate Creek supports about 1500 plants (as reported in 2013).

PNF management prescription: Evaluate all project activities on a site-by-site basis considering species abundance, population size, geographic distribution, and known species ecology.

Direct and Indirect Effects

The one plant of *Erigeron petrophilus* var. *sierrensis* that is within the project area is within a unit planned for roadside hazard and hand-cut pile burn treatments. This plant is 250 ft from a road and therefore would not be impacted by any roadside hazard tree removal. It is growing in a rocky opening in the forest, so would likely not be impacted by hand-cut and pile burn activities. Since this is one plant out of an occurrence of 500 plants (or 2000 plants if counting the extension of the occurrence on the south side of Slate Creek), its potential loss from project activities would have no overall impact on the viability or persistence of the species at this location. Thus no botany Controlled Area will be established to protect it. However, the 7 acre site adjacent to the project area will be designated as a botany Controlled Area to prevent accidental disturbance to it from project activities. This Controlled Area will be designated as a keep out area.

See the Botany Protection Plan (page 27) for details about planned management of the botany Controlled Area established for the protection of *Erigeron petrophilus* var. *sierrensis* (northern Sierra daisy).

REVEGETATION OF DISTURBED AREAS WITH NATIVE SPECIES

All activities that require seeding or planting would need to use only locally collected native seed sources. Examples of proposed activities that may need to be seeded are road closures, landings, or skid trails. This would implement the USFS Region 5 policy (USDA Forest Service 1994) that directs the use of native plant material for revegetation and restoration for maintaining “the overall national goal of conserving the biodiversity, health, productivity, and sustainable use of forest, rangeland, and aquatic ecosystems.” An alternative method of erosion control where erosion is a particular concern and where adequate sources of local native seed are not available is to use weed-free seed or weed-free straw with seed-heads of non-persistent cereal grains such as white oats. This would provide erosion control until native species can naturally seed in.

NOXIOUS WEED RISK ASSESSMENT

INTRODUCTION

Forest management activities, such as those associated with fuels reduction and forest health, can contribute to the introduction and spread of invasive plant species, including noxious weeds, by creating suitable environmental conditions for establishment and by acting as vectors for spread. This Noxious Weed Risk Assessment has been prepared to evaluate the risk of noxious weed introduction and spread as a result of the Gibsonville Healthy Forest Restoration Project. The risk assessment focuses on California Department of Food and Agriculture (CDFA) listed noxious weeds (also called Non-native Invasive Plant species – NNIP). This assessment is in compliance with the Plumas National Forest Land and Resource Management Plan (LRMP) (USDA Forest Service 1988), the Sierra Nevada Forest Plan Amendment (SNFPA) Final Environmental Impact Statement Record of Decision (ROD) (USDA Forest Service 2004b), and direction in the Forest Service Manual (FSM) section 2900, Invasive Species Management (USDA Forest Service 2011; this superseded FSM section 2080, Noxious Weed Management, in Dec. 2011).

MANAGEMENT DIRECTION

Forest Service Manual

Overall objectives in FSM 2900 involve management of aquatic and terrestrial invasive species based on an integrated pest management approach, prioritizing 1) prevention and 2) early detection and rapid response actions as necessary, as well as 3) control and management and 4) restoration. The FSM includes a policy statement calling for a risk assessment for invasive species to be completed for any proposed action. Some FSM 2900 policy statements particularly relevant to project planning are as follows:

- Determine the risk of introducing, establishing, or spreading invasive species associated with any proposed action, as an integral component of project planning and analysis, and where necessary provide for alternatives or mitigation measures to reduce or eliminate that risk prior to project approval.
- Initiate, coordinate, and sustain actions to prevent, control, and eliminate priority infestations of invasive species in aquatic and terrestrial areas of the National Forest System using an integrated pest management approach, and collaborate with stakeholders to implement cooperative invasive species management activities in accordance with law and policy.
- Determine the vectors, environmental factors, and pathways that favor the establishment and spread of invasive species in aquatic and terrestrial areas the National Forest System, and design management practices to reduce or mitigate the risk for introduction or spread of invasive species in those areas.
- Ensure that all Forest Service management activities are designed to minimize or eliminate the possibility of establishment or spread of invasive species on the National Forest System, or to adjacent areas.
- Use contract and permit clauses to require that the activities of contractors and permittees are conducted to prevent and control the introduction, establishment, and spread of aquatic and terrestrial invasive species.
- Make every effort to prevent the accidental spread of invasive species carried by contaminated vehicles, equipment, personnel, or materials (including plants, wood, plant/wood products, water, soil, rock, sand, gravel, mulch, seeds, grain, hay, straw, or other materials).
 - Establish and implement standards and requirements for vehicle and equipment cleaning to prevent the accidental spread of aquatic and terrestrial invasive species on the National Forest System or to adjacent areas.
 - Make every effort to ensure that all materials used on the National Forest System are free of invasive species and/or noxious weeds (including free of reproductive/propagative material).

Sierra Nevada Forest Plan Amendment (SNFPA)

The Record of Decision (ROD) for the SNFPA amends the management direction in the LRMP for the Plumas National Forest to address management of noxious weeds and invasive species. The management goals and strat-

egies for noxious weed management given in Appendix A of the SNFPA ROD stress three priorities: 1) Prevent the introduction of new invaders, 2) Conduct early treatment of new infestations, and 3) Contain and control established infestations. Provisions for implementing these goals are detailed in the Forest-wide Standards and Guidelines in Appendix A. The noxious weed management standards and guidelines state that a noxious weed risk assessment needs to be conducted to determine the risks for weed spread associated with different types of proposed management activities. Other SNFPA standards and guidelines that apply to this project for noxious weed management include:

- As part of project planning, conduct a noxious weed risk assessment to determine risks for weed spread (high, moderate, or low) associated with different types of proposed management activities.
- When recommended in project-level noxious weed risk assessments, consider requiring off-road equipment and vehicles (both Forest Service and contracted) used for project implementation to be weed free.
- Minimize weed spread by incorporating weed prevention and control measures into ongoing management or maintenance activities that involve ground disturbance or the possibility of spreading weeds.
- Conduct follow-up inspections of ground disturbing activities.
- Encourage use of certified weed free hay and straw.

Standard Operating Procedures (SOPs)

The following SOPs are in regular use on the Feather River RD to reduce the introduction of new noxious weeds and the risk of spreading known infestations on National Forest System lands. MORE SPECIFIC NOXIOUS WEED PREVENTION MEASURES ARE PRESENTED IN APPENDIX A.

- **Prevention/Cleaning.** Require all off-road equipment and vehicles (Forest Service and contracted) used for project implementation to be weed-free. Clean all equipment and vehicles of all attached mud, dirt and plant parts. This will be done at a vehicle washing station or steam cleaning facility before the equipment and vehicles enter the project area. Cleaning is not required for vehicles that will stay on the roadway. Also, all off-road equipment must be cleaned prior to leaving areas infested with noxious weeds.
- **Prevention/Road Construction, Reconstruction, and Maintenance.** All earth-moving equipment, gravel, fill, or other materials need to be weed free. Use onsite sand, gravel, rock or organic matter where possible.
- **Prevention/Revegetation.** Use weed-free equipment, mulches, and seed sources. Avoid seeding in areas where revegetation will occur naturally, unless noxious weeds are a concern. Save topsoil from disturbance and put it back to use in onsite revegetation, unless contaminated with noxious weeds. All activities that require seeding or planting will need to use only locally collected native seed sources. Plant and seed material should be collected from as close to the project area as possible, from within the same watershed and at a similar elevation whenever possible. Persistent non-natives such as timothy, orchard-grass, or ryegrass will be avoided. This will implement the USFS Region 5 policy that directs the use of native plant material for revegetation and restoration for maintaining “the overall national goal of conserving the biodiversity, health, productivity, and sustainable use of forest, rangeland, and aquatic ecosystems.”
- **Prevention/Staging Areas.** Do not stage equipment, materials, or crews in noxious weed infested areas where there is a risk of spread to areas of low infestation.
- Small infestations identified during project implementation will be evaluated and hand treated or “flagged and avoided” according to the species present and project constraints. If larger infestations are identified after implementation, they should be isolated and avoided with equipment (and equipment washed as in #1 above).

RISK ASSESSMENT

This Noxious Weed Risk Assessment has been prepared to evaluate the risk of noxious weed introduction and spread as a result of the Gibsonville Healthy Forest Restoration Project. This evaluation is a nine-step process to assess factors not dependent on the proposed action 1) Inventory, 2) Known noxious weeds, 3) Current habitat

vulnerability, 4) Non-project dependent vectors, factors that would result from the proposed action, 5) Habitat alteration expected as a result of project, 6) Increased vectors as a result of project implementation and recommended design criteria and standard operating procedures, 7) Noxious weed control and prevention measures, 8) Anticipated weed response to proposed action, and 9) Costs.

1. Inventory.

All areas of the Gibsonville Healthy Forest Restoration Project were surveyed at least one time between 2004 and 2015 for Threatened, Endangered, Proposed, and Sensitive plant species (TEPS), Watch List (Special Interest) plant species, and invasive plant species (noxious weeds) by Forest Service botanists, with 90% of the area surveyed or re-surveyed in 2012 or 2013. Most roadsides were observed numerous time during those years, especially for invasive species (noxious weeds). Botanical surveys focused on rare species with potential habitat and invasive species (noxious weeds). However, surveys were floristic in nature and an attempt was made to identify all plants encountered in the field. Many species have specific habitat preferences (such as serpentine outcrops or wetlands), and botanists searched for these habitats as well as their constituent species. Documentation of field surveys is filed in the District botany office and in the GIS files of official record (NRIS).

Inventory summary

Adequate noxious weed surveys have been completed within the project area.

2. Known noxious weeds.

Two noxious weed species were located within the project area. Information about these species is summarized in Table 6 and in the following paragraphs.

Table 6. Noxious weed species located within the Gibsonville Healthy Forest Restoration Project area. CAs = botany Controlled Area.

Species	Common Name	CDFA category ¹	Acres within Project area	Project implications
<i>Cirsium vulgare</i>	bull thistle	C-rated	not recorded	not managed
<i>Hypericum perforatum</i>	Klamathweed	C-rated	not recorded	not managed

¹The California Department of Food and Agriculture's noxious weed list (CDFA 2016a) divides noxious weeds into categories A, B, and C (CDFA 2016b): A-listed weeds are those for which eradication or containment is required at the state or county level; B-listed weeds are those where eradication or containment is at the discretion of the County Agricultural Commissioner; and C-listed weeds require eradication or containment only when found in a nursery or at the discretion of the County Agricultural Commissioner.

The two CDFA C-rated noxious weed species found within the project area are generally not managed by Plumas National Forest. Bull thistle (*Cirsium vulgare*) and Klamathweed (*Hypericum perforatum*) have scattered occurrences within the project area and across the Plumas National Forest. However, these two species are not managed on the Plumas National Forest at this time due to their common occurrence and their generally successful control within the state. These two species are not mapped or tracked on the Plumas National Forest and in general there is no attempt to control them. They are only briefly discussed below.

Klamathweed (*Hypericum perforatum*) can be found along most Forest Service roads on the Plumas National Forest that are not shaded by overstory canopy. Plants are usually scattered within the road prism, rarely forming dense stands or invading the adjacent forest. Plant distribution appears to be most heavily concentrated at the lower elevations (1000-4000 ft), with plants becoming less common at the higher elevations. Biological control agents, which include two leaf-feeding beetles (*Chrysolina quadrigemina* and *C. hyperici*) and one root-boring beetle (*Agrilus hyperici*), largely control Klamathweed. These biological control agents have reduced infestations by 97 to 99 percent since 1940 (CDFA 2016a). The elevation of the project area is 5050 ft to 6450 ft; thus heavy concentrations of Klamathweed would not be expected. Indeed, the botanical inventories of the area reported on-

ly occasional sightings of Klamathweed. *There will be no control measures for Klamathweed as part of this project.*

Bull thistle (*Cirsium vulgare*) was probably introduced in North America during colonial times. It is naturalized and widespread throughout North America and is found on every continent except Antarctica (Bossard et al. 2000). It is most common in disturbed areas with little to no canopy and, like Klamathweed, is often found along roads with little shade cover. It is common along most Forest Service roads on the Plumas National Forest, although on the Feather River Ranger District it does not normally form dense thickets. Although not native, bull thistle plants provide forage for many native insect species. Butterflies, bees, and bumble bees are frequently observed on these plants. Furthermore, bull thistle does not spread by rhizomes or other creeping roots and does not produce allelopathic chemicals like some other A and B rated noxious weeds (Bossard et al. 2000). Two biocontrol insects (*Urophorastylata* and *Rhinocyllus conicus*) have been released in California and help reduce population levels. *There will be no control measures for bull thistle as part of this project.*

Known Noxious Weeds Summary

Due to the lack of priority species within the project area there is a LOW risk from known noxious weeds.

3. Current habitat vulnerability.

Vulnerability to noxious weed invasion and establishment is greatly influenced by plant cover, soil cover, and over-story shade. Areas become more susceptible to noxious weed invasion when these components are removed. Wildland fire and logging are sources of disturbance that can greatly alter vulnerability to noxious weed invasion. However, once the native vegetation reestablishes, the conditions that favor noxious weed establishment are no longer present.

There are a number of past, current and future timber sales on private land within the analysis area. These activities increase the overall vulnerability of the area to noxious weed invasion. There are about 8 miles of roads within the project area, which create areas that can be prone to noxious weed establishment. Roads facilitate the movement of weeds into uninfested areas. There is also a high degree of logging on private ground within the vicinity of the project area.

Current Habitat Vulnerability Summary

Although there is much logging activity on nearby private land, due to the low concentration of roads and the higher elevation of the project area, the overall habitat vulnerability is LOW.

4. Non-project dependent vectors.

Non-project dependent weed vectors include roads and recreational activities including camping, hiking, horse-back riding, and hunting. The areas at greatest risk in this proposed project area are those located next to roads. Roads can provide dispersal of exotic species via three mechanisms: providing habitat by altering conditions, making invasion more likely by stressing or removing native species, and allowing easier incidental introduction by wild or human vectors. Although there are about 8 miles of roads within the project area, due to the low number of OHV routes in the project area there is a low potential impact for introduction of weeds by OHVs.

Limited recreation opportunities are primarily focused on dispersed activities that do not require development. Recreation uses within and adjacent to the Gibsonville Healthy Forest Restoration Project area include hunting, auto touring, OHV and off highway motorcycle riding, woodcutting, geocaching, and fishing. There are no developed recreation facilities within the project area boundary and there are no roads designated for off-road vehicles.

The project area partly encloses a parcel of private timber land and is close to a private parcel that includes a small lake and church camp. Both factors greatly increase the vulnerability of the area to noxious weed invasion in numerous ways that are beyond the purview of the Forest Service to control.

Non-Project Dependent Vectors Summary

The numerous factors discussed above contribute to the vulnerability of the project area to noxious weed invasion; thus the overall habitat vulnerability is rated as MEDIUM.

5. Habitat alteration expected as a result of project.

Summary of Proposed Project Activities

See pages 5-8 above for descriptions of proposed project activities and Table 7 for acres of each proposed project activity.

Table 7. Gibsonville Healthy Forest Restoration Project: Summary of proposed forest health and restoration treatments, and comparison of treatment acres by alternative.

Proposed Treatments	Alternative B (Acres)	Alternative C (Acres)	Difference (Acres)
Aspen Release and Biomass	23	23	
Hand cut pile burn and Underburn	345	435	+91
Masticate and Underburn	18	18	
Masticate and Underburn and Biomass	26	26	
Masticate or Hand cut pile burn or Underburn	137	137	
Meadow Restoration and Biomass	9	9	
No Treatment	146	171	+25
Riparian Restoration	16	16	
Roadside Hazard and Hand cut pile burn	54	54	
Roadside Hazard and Hand cut pile burn and Biomass	61	61	
Underburn	7	7	
Variable density thin to an average of 40% canopy cover and Underburn and Biomass	359	243	-116
Grand Total	1,200	1,200	0

Hand cutting and pile burning or biomass removal, followed by underburning: Soil disturbance associated with pile burning and fire-line construction may create ground disturbance that favors the establishment of early seral species. Many noxious weeds are adapted to such environments. Similarly, many native species such as *Lupinus* spp., *Ceanothus* spp., *Clarkia* spp., and many grasses readily establish in disturbed areas. Consequently, the creation of a disturbed area does not necessarily translate into the creation of habitat that will only be populated noxious weeds.

A second important element in noxious species establishment is sunlight. Keeley & Beyers (2001) explain that most alien species are highly intolerant of shading. Although the proposed project will result in greatly increased levels of sunlight reaching the ground surface, eventually much of the project area will become a shaded fuel break where long-term management will endeavor to maintain 40-59% canopy cover. This will help prevent the establishment of many invasive species that require high levels of sunlight.

Underburn: Prescribed underburns are designed to reduce excess live and dead vegetation and move the area towards the desired fuel condition. This type of burning is initiated when fuel moistures are low enough to safely carry fire and still meet resource objectives. Firelines constructed by hand are scraped to mineral soil to a minimum of two feet wide and vegetation cleared to a minimum width of six feet. Dead fuel would be scattered away from the mineral soil scrape to reduce fire intensity along the fire line. Machine lines, constructed with mechanized equipment, would be scraped to mineral soil a minimum of six feet and vegetation cleared to a minimum of ten feet.

Underburning in the areas associated with this project is not expected to create environmental conditions favorable to noxious weed invasion. The prescribed underburns will occur in the spring or fall when fuel moisture levels, temperature, and humidity are favorable for a low intensity burns that will not completely remove the duff

layer nor remove the canopy.

Data suggest the degree of fire-induced disturbance is an important factor in post fire noxious weed invasion. According to Crawford (cited in Keeley & Beyers 2001), studies of high and low intensity burns showed that noxious weed invasion is favored when fire intensity is sufficient to open the canopy and destroy the litter layer. Also, Brooks *et al.* (citing Keeley *et al.* in preparation) explains how recent studies throughout the southern Sierra Nevada have shown cheatgrass (*Bromus tectorum*) invasions to be the most predictable in forest patches that were burned with high intensity. They explain that such impacts could be potentially more profound now due to unnaturally high fuel loads. A goal of this project is to reduce the unnaturally high fuel loads that would support the sort of high intensity wildfire that would result in favorable conditions to noxious weed invasion. Furthermore, it has been shown that treatments that reduce surface fuels, such as prescribed fire, can result in a profound reduction in fire intensity and can be effective for up to 10 years post treatment (Omi *et al.* 2006).

Habitat Alteration Summary

Some project activities will disturb soil and remove some overstory shade, creating environmental conditions favorable to noxious weed invasion. But in addition to noxious weeds, many native early seral species will be favored by canopy thinning activities. The combined effect of these proposed action-dependent factors will result in a MODERATE risk to noxious weed invasion.

6. Increased vectors as a result of project implementation.

Road Reconstruction / Improvement

Road reconstruction would consist of brushing, blading the road surface, improving drainage, and replacing/upgrading culverts where needed. At most, 3.5 miles of system roads would be reconstructed, as operationally required (action alternatives). Because this is only a small amount of road construction/reconstruction, there is a low risk of noxious weed invasion due to building temporary roads, road maintenance, and a short-term increase in vehicular traffic.

Increased Vectors Summary

There is a LOW risk of increased noxious weed invasion because there would be no road building or temporary roads, only a small amount of road maintenance, and a short-term increase in vehicular traffic.

7. Noxious weed control and prevention measures.

Project-specific Prevention Measures

- **Standard Operating Procedures (SOPs)**

The following SOPs are in regular use on the Feather River RD to reduce the introduction of new noxious weeds and the risk of spreading known infestations on National Forest System lands. MORE SPECIFIC NOXIOUS WEED PREVENTION MEASURES ARE PRESENTED IN APPENDIX A.

- Hand-treat (pull) any noxious weeds that may be found within the project area. If plants are fruiting, bag and remove from the site; if not fruiting, pile in place and let dry, or add to burn piles.
 1. Treat noxious weeds at the beginning of project implementation (there are no noxious weeds of management concern currently known within the project area).
 2. Watch for noxious weeds during all aspects of project implementation and treat, as feasible.
 3. Treat noxious weeds during follow-up project activities.
- Avoid the sites of known noxious weeds to avoid spreading seeds or live plants.
 1. Do not park vehicles or stockpile supplies in sites of noxious weeds (even if plants have been removed).
 2. Do not drive equipment through noxious weed sites or drag downed trees or brush through the sites.
 3. Encourage placement of burn piles within noxious weed sites.
 4. Notify District botanists ahead of project implementation to flag the sites on the ground.

- Follow Feather River RD standard noxious weed and invasive plant mitigation measures. These standards are detailed at the end of this document. These standards include the following provisions:
 1. Ensure that equipment brought into the project area is weed free,
 2. Do not drive or park on known noxious weed occurrences,
 3. Locate and use weed-free staging areas, and
 4. Use only weed-free mulch and fill.

Prevention and Control Summary

With or without project implementation there is a LOW POTENTIAL for weed spread, although somewhat higher with project implementation and the resulting ground-disturbing activities. However, project implementation with standard noxious weed control and prevention measures in place would result in a greatly reduced risk.

8. Summary of anticipated weed response to proposed action.

Table 8. Summary of anticipated weed response to the proposed action.

Factors	Variation	Risk
NON- PROPOSED ACTION DEPENDENT FACTORS		
1. Inventory	Adequate	Low risk
2. Known Noxious Weeds	Present, abundant (Scotch broom)	Low risk
3. Habitat vulnerability	1999 wildfire damage, dense fire-prone brush, but few roads	Low risk
4. Non-project dependent vectors	Well-use public road, recreation, adjacent private timber lands and residential areas	Medium risk
PROPOSED PROJECT DEPENDENT FACTORS		
5. Habitat alteration expected as a result of project	Opening up of the canopy, brush removal and burn piles	Moderate risk, which is mitigated by project design prevention and control measures
6. Increased vectors as a result of project implementation	Short-term traffic increase, hand-work only, low levels of ground disturbance	Low risk
7. Control and prevention measures	Prevention measures and control measures in project design	Low risk results from prevention and control measures
8. Anticipated weed response to proposed action	Project design features include elimination of noxious weeds, prevention and monitoring	Low risk results from prevention and control measures, and lack of pre-existing noxious weeds
9. Cost estimate	None – there are no weeds to treat within the proposed project	Generally, it is more economical and efficient to treat small infestations than to wait until they are large

Anticipated Weed Response Summary

Implementation of project design features to prevent introduction of noxious weeds into the project area and prevent their spread is essential to there being an overall LOW POTENTIAL for weed spread that would result from overall project implementation.

9. Cost estimate.

Noxious weeds significantly reduce the value of public lands. Noxious weeds negatively impact timber production, grazing, wildlife habitat, and recreational opportunities. Furthermore, noxious weed control is expensive and

time consuming. Prevention and control of small infestations can reduce these impacts and reduce expenditures in the long run. Thus, noxious weed surveys, control of small infestations, and prevention measures are vital in reducing overall impacts and costs from noxious weeds.

Since no treatments are planned for the noxious weed species within the Project area as part of planned Project activities, no costs are anticipated beyond those that result from the implementation of standard noxious weed prevention measures.

BOTANY PROTECTION PLAN

MEASURES FOR PROTECTION OF SENSITIVE and WATCH LIST (SPECIAL INTEREST) PLANT SPECIES, and TO PREVENT THE SPREAD OF NOXIOUS WEEDS

Sensitive and Watch List plant species.

All known locations of R5 Sensitive and PNF Watch List plant species within the project area will either not be affected by project activities (*Lewisia kelloggii* ssp. *hutchisonii* – Hutchison’s lewisia) or will be protected from ground-disturbing activities through the establishment of a botanical Controlled Area (*Botrychium minganense* – Mingan moonwort). The one location of the PNF Watch List plant species Yosemite moonwort (*Botrychium simplex*) within the project area will also be protected from ground-disturbing activities through the establishment of a botanical Controlled Area. Each of these two Controlled Areas, which are within project treatment units, will be less than 0.1 acre in extent (Table 9, Figure 3) and are not expected to interfere with the overall implementation of planned project activities. In addition, one 7 acre area immediately adjacent to the project area will be flagged as a botany Controlled Area to completely protect the Sensitive (*Boechera constancei* – Constance’s rockcress) and Watch List (*Erigeron petrophilus* var. *sierrensis* – northern Sierra daisy) species within it (Table 9, Figure 3).

Thinning and hand cutting activities are desired within these botany Controlled Areas following the prescriptions planned for each project planning unit, with the following provisions:

- Heavy equipment will not enter these Controlled Areas, burn piles will not be placed in them.
- Minimize potential trampling within these Controlled Areas.
- The district botanist will flag these Controlled Areas on the ground prior to project implementation, with red-and-black-stripe and blue-and-black-stripe flagging tied together.

Table 9. Gibsonville Healthy Forest Restoration Project units with botany Controlled Areas (CAs) for rare plant species (TESP). See text above for further explanation.

Unit number	Species	Type	Area (acres)	TESP mitigations	planned unit treatments	management requirements
756	BOMI	TESP	0.02	1 Controlled Area	Handcut and hand pile, burn piles, underburn	Handcut within the CA but put burn piles outside of CA, minimize trampling
R01	BOSI	TESP	0.02	1 Controlled Area	Handcut and hand pile, burn piles or chip material, underburn	Handcut within the CA but put burn piles outside of CA, minimize trampling
549	BOCO7, ERPES2	TESP	7.74	1 Controlled Area	none	STAY OUT - none of this CA is within the unit, it borders the southeast edge

TESP = Threatened, Endangered, Sensitive or Proposed species:

BOMI = Mingan moonwort - R5 Sensitive

BOSI = Yosemite moonwort - PNF Watch List

BOCO7 = Constance’s rockcress - R5 Sensitive

ERPES2 = northern Sierra daisy - PNF Watch List

Non-Native Invasive Plant species (NNIP – also called noxious weeds).

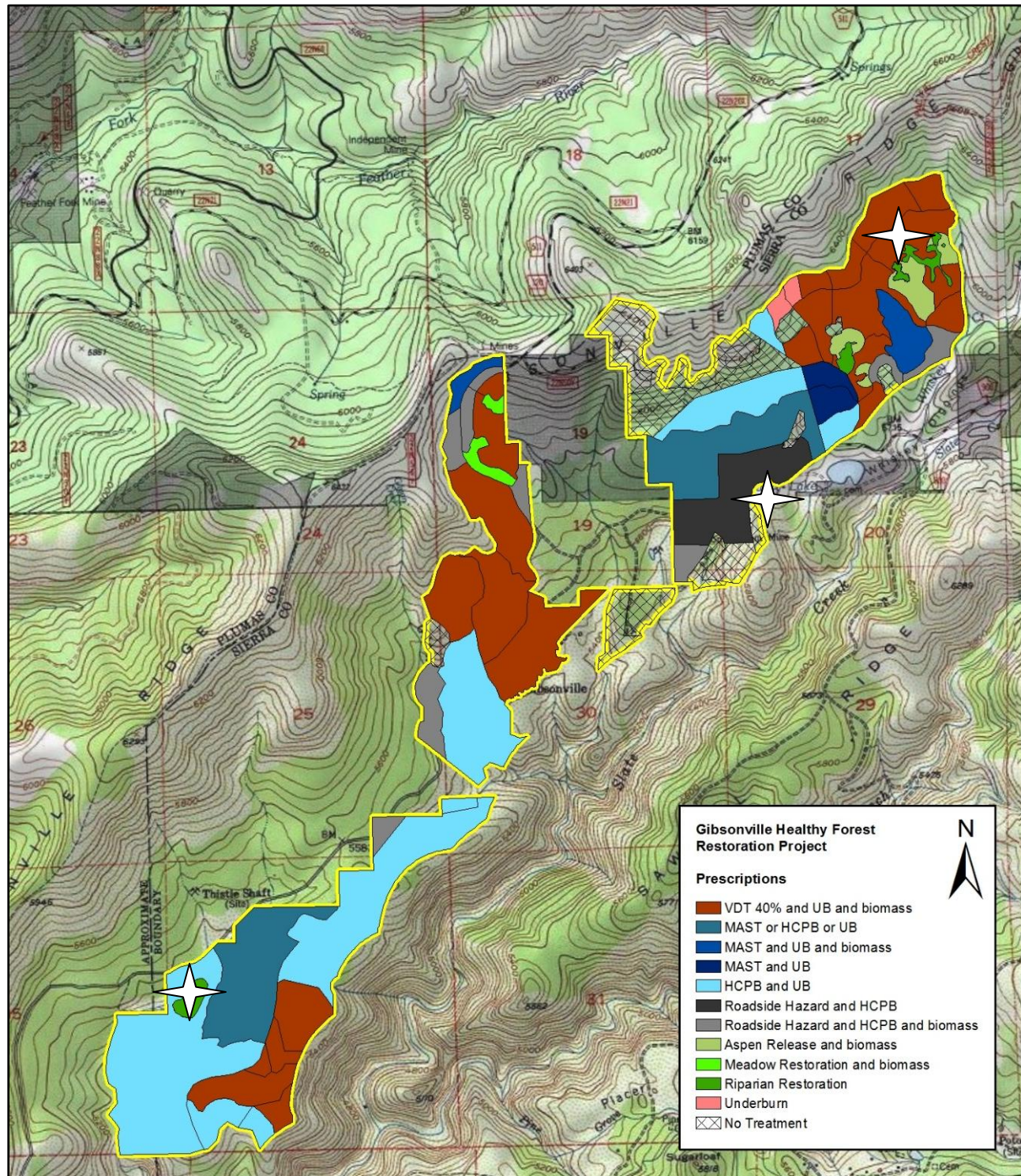
Invasive species (noxious weeds). All equipment used off-road will be weed-free prior to entering National Forest system lands. Non-native invasive species identified before ground-disturbing activities will be pulled or cut according to species composition and project constraints. Equipment will be washed before moving from an infested area to a non-infested area, whether or not the noxious weeds present were pulled or cut. Equipment staging will be done in weed-free areas.

Standard Operating Procedures (SOPs)

The following SOPs are in regular use on the Feather River RD to reduce the introduction of new noxious weeds and the risk of spreading known infestations on National Forest System lands. MORE SPECIFIC NOXIOUS WEED PREVENTION MEASURES ARE PRESENTED IN APPENDIX A.

- Hand-treat (pull) any noxious weeds that may be found within the project area. If plants are fruiting, bag and remove from the site; if not fruiting, pile in place and let dry, or add to burn piles.
 1. Treat noxious weeds at the beginning of project implementation (there are no noxious weeds of management concern currently known within the project area).
 2. Watch for noxious weeds during all aspects of project implementation and treat, as feasible.
 3. Treat noxious weeds during follow-up project activities.
- Avoid the sites of known noxious weeds to avoid spreading seeds or live plants.
 1. Do not park vehicles or stockpile supplies in sites of noxious weeds (even if plants have been removed).
 2. Do not drive equipment through noxious weed sites or drag downed trees or brush through the sites.
 3. Encourage placement of burn piles within noxious weed sites.
 4. Notify District botanists ahead of project implementation to flag the sites on the ground.
- Follow Feather River RD standard noxious weed and invasive plant mitigation measures. These standards are detailed at the end of this document. These standards include the following provisions:
 1. Ensure that equipment brought into the project area is weed free,
 2. Do not drive or park on known noxious weed occurrences,
 3. Locate and use weed-free staging areas, and
 4. Use only weed-free mulch and fill.

Figure 3. Botany Controlled Areas for protection of rare plants (white stars) – within the Gibsonville Healthy Forest Restoration Project area (project area outline in yellow). Sierra (mostly) and Plumas counties, T22N R9E and T22N R20E. Scale approx. 1¼" = 1 mile.



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APPENDIX A

FEATHER RIVER RANGER DISTRICT NOXIOUS WEED AND INVASIVE PLANT MITIGATION MEASURES.

These mitigation measures have been prepared to prevent the establishment and spread of spread of CDFA-listed noxious weeds and other invasive plants on US Forest Service managed lands and are in compliance with the Plumas National Forest Land and Resource Management Plan (USDA Forest Service 1988) and the Sierra Nevada Forest Plan Amendment Final Environmental Impact Statement Record of Decision (USDA Forest Service 2001). Specifically, the manual states:

1. EQUIPMENT CLEANING

Clean all ground disturbing equipment prior to project initiation unless it is coming from a weed free area. See contract provision below.

B6.35, C6.343 – EQUIPMENT CLEANING. (7/01) Unless the entire Sale Area is already infested with specific noxious weed species of concern, Purchaser shall ensure that prior to moving on to the Sale Area all off-road equipment, which last operated in areas known by Forest Service to be infested with specific noxious weeds of concern, is free of soil, seeds, vegetative matter, or other debris that could contain or hold seeds. Purchaser shall certify in writing that off-road equipment is free of noxious weeds prior to each start-up of timber sale operations and for subsequent moves of equipment to Sale Area. The certification shall indicate the measures taken to ensure that off-road equipment is free of noxious weeds will be identified. “Off-road equipment” includes all logging and construction machinery, except for log trucks, chip vans, service vehicles, water trucks, pickup trucks, cars, and similar vehicles. A current list of noxious weeds of concern to Forest Service is available at the Forest Supervisor’s Office.

Purchaser must clean off-road equipment prior to moving between cutting units on this timber sale that are known to be infested with noxious weeds and other units, if any, that are free of such weeds. Sale Area Map shows areas, known by Forest Service prior to timber sale advertisement, that are infested with specific noxious weed species of concern.

Purchaser shall employ whatever cleaning methods are necessary to ensure that off-road equipment is free of noxious weeds. Equipment shall be considered free of soil, seeds, and other such debris when a visual inspection does not disclose such material. Disassembly of equipment components or specialized inspection tools are not required.

Purchaser shall notify Forest Service at least 5 days prior to moving each piece of off-road equipment on to the Sale Area, unless otherwise agreed. Notification will include identifying the location of the equipment's most recent operations. If the prior location of the off-road equipment cannot be identified, Forest Service may assume that it was infested with noxious weed seeds. Upon request of Forest Service, Purchaser must arrange for Forest Service to inspect each piece of off-road equipment prior to it being placed in service.

If Purchaser desires to clean off-road equipment on National Forest land, such as at the end of a project or prior to moving to a new unit that is free of noxious weeds, Purchaser and Forest Service shall agree on methods of cleaning, locations for the cleaning, and control of off-site impacts, if any.

New infestations of noxious weeds, of concern to Forest Service and identified by either Purchaser or Forest Service on the Sale Area, shall be promptly reported to the other party. Purchaser and Forest Service shall agree on treatment methods to reduce or stop the spread of noxious weeds when new infestations are found. In the event of contract modification under this Subsection, Purchaser shall be reimbursed for any additional protection required, provided that any work or extra protection required shall be subject to prior approval by Forest Service. Amount of reimbursement shall be determined by Forest Service and shall be in the form of a reduction in stumpage rates,

unless agreed otherwise in writing. However, in no event may stumpage rates be reduced below Base Rates.

INSTRUCTIONS: Include in all new contracts.

The Forest Service must identify on the sale area map units that are infested with specific noxious weeds species of concern.

The prospectus for the sale must notify prospective purchasers that maps of these known locations are available from the local Forest Supervisor's Office or District Ranger Station. A list of noxious weeds of concern to the Forest Service (normally included in the Noxious Weed Program Guide) must be available for the purchaser's inspection. The current National Forest Noxious Weed Program Guide, noxious weed atlas, or other data sources, as needed, will be used to determine locations of known infestation.

Significant changes in the status of noxious weed infestations on the sale may require contract modifications to deal with changed conditions. An example might be where new noxious weed infestations are discovered after contract award, which require costly additional methods to prevent the spread of such infestations.

2. WEED FREE MULCH AND FILL:

C6.343- Make every effort to ensure that all seed, feed, hay, and straw used on National Forest System lands is free of noxious weed seeds.

(FSH 6309.12, sec. 42 and 42.1).

3. EQUIPMENT STAGING/ CONTROLLED AREAS

B6.24- Locate and use weed-free project staging areas. Avoid or minimize all types of travel through weed-infested areas, or restrict to those periods when spread of seed or propagules are least likely. Also, stay within the road prism when parking. If an area needs to be disturbed for parking additional botanical surveys will need to be conducted.